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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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PATTON BOGGS LLP			CHEN, KEATH T	
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DENVER, CO 80202				
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			1792	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/563,519

Applicant(s)

SNEH, OFER

Examiner

Keath T. Chen

Art Unit

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 12-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01/05/2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>04/13/2006</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted. Groups:

- I. Claims 1-11, drawn to pressure control apparatus, classified in class 156, subclass 345.29.
- II. Claims 12-14, drawn to method, classified in class 137, subclass 14.
- III. Claim 15, drawn to process chamber, classified in class 118 subclass 715.

The inventions listed as Groups I & II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The common inventive concept between group I and group II is the two FREs, a PCC, a gas source and flow controlling device. This common inventive concept is not special (e.g. US patent 5415585) and lack of unity of invention.

The inventions listed as Groups I & III (or II & III) do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The common inventive concept between group I & III (or II and III) a process chamber. This

common inventive concept is not special (e.g. US patent 5415585) and lack of unity of invention.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected invention.

If claims are added after the election, applicant must indicate which of these claims are readable upon the elected invention.

Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

1. During a telephone conversation with Carl Forest on 11/7/07, a provisional election was made with traverse to prosecute the invention of Group I, claims 1-11. Affirmation of this election must be made by applicant in replying to this Office action. Claims 12-15 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Interpretation

Claims 4 and 8 cited "said PCC" refers to the PCC in claim 1 (or 5), which is a PCC downstream from process chamber. The reference to (308) is not read into the claim.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "an abatement chamber (502) connected in serial fluidic communication downstream from said third FRE" of claims 3 and 7 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended

replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 3 and 7 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. "An abatement chamber (502) connected in

serial fluidic communication downstream from said third FRE" while it is shown in Fig. 6 as upstream of the third FRE (#504).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 4-5, and 8-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Bhatnagar et al. (US 6391146, hereafter '146).

'146 teaches all limitations of:

Claim 1: A sub-atmospheric downstream pressure control apparatus (Fig. 4, abatement system #200, col. 8, line 26, part of the system of Fig. 1, including the throttle valve #82), characterized by: a first flow restricting element (FRE) (throttle valve #82, Fig. 1); a pressure control chamber (PCC) (exhaust tube #85, similar to exhaust tube shown in various figures in instant application) located in serial fluidic communication downstream from said first FRE; a second FRE (throttle valve, not shown in Fig. 4, close to inlet #211, col. 6, lines 35-38) located in serial fluidic communication downstream from said PCC; a gas source (one of the #235, col. 7, lines 37-40); and a flow controlling device (one of the control valve #240) in serial fluidic communication downstream from said gas source and upstream from said PCC.

Claim 5 (besides the limitations of claim 1): A wafer processing apparatus comprising a process chamber (Fig. 1, #25), said apparatus characterized by; a process

reactive gas supply line (line connects between #70 and nozzle #72) from a process gas source (#70, col. 3, lines 36-38) in serial fluidic communication upstream from said process chamber; an upstream flow control device (the valve as shown in Fig. 1, not labeled) located in serial fluidic communication upstream from said process chamber and downstream from said process gas source.

Claims 4 and 8: A sub-atmospheric downstream pressure control apparatus as in claim 1 (or 5) wherein a process chamber (Fig. 1, #25) is located in serial fluidic communication upstream from said first FRE (#82); said process chamber and said PCC (#85) are formed as compartments within a single process vessel (#200, #85, and wall of chamber #25 are connected into a single vessel); and said first FRE (#82) is formed within the partition between said process chamber (#25) and said PCC (#85).

Claim 9: A sub-atmospheric downstream pressure control apparatus as in claim 5 wherein said process is LPCVD (col. 12, lines 35, col. 3, line 39, low pressure).

Claim 10: A sub-atmospheric downstream pressure control apparatus as in claim 5 wherein said process is RIE (col. 4, line 4 and col. 3, line 40, plasma etching is RIE).

Claim 11: A sub-atmospheric downstream pressure control apparatus as in claim 5 wherein said process is PECVD (col. 3, line 40).

For claims 9-11, applicant's claim requirements "LPCVD", "RIE", and "PECVD" are considered intended use in the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter, 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural

difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claims 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over '146.

'146 teaches all limitations of claims 1 and 5, as discussed above.

'146 further teaches the limitations of claims 3 and 7:

A sub-atmospheric downstream pressure control apparatus as in claim 1 (or 5) further characterized by: an abatement chamber (#210, gas energized reactor); a reactive gas source (the second #235, col. 8, lines 12-13) connected in serial fluidic

communication upstream from said abatement chamber; and an abatement element (#226a-b, electrode) located within said abatement chamber.

'146 does not teach the limitations of claims 3 and 7:

A third FRE connected in serial fluidic communication downstream from said PCC (#85); an abatement chamber connected in serial fluidic communication upstream from said third FRE

'146 further teaches a throttle valve at the inlet #211 to prevent backflow (col. 6, lines 35-38). At the time the invention was made, it would have been obvious to a person of ordinary of skill in the art to have added an additional throttle valve between the outlet (#212, Fig. 4) and pumps (#125) to further prevent backflow of effluent (#100). This additional throttle valve would have been a third FRE downstream from said PCC(#85) and the abatement chamber (#210) upstream from said third FRE.

Motivation would have been to further prevent backflow of effluent, as taught by '146 (col. 6, lines 35-38).

'146 discloses the claimed invention except for an additional throttle valve. It would have been an obvious matter of design choice to duplicate the throttle valve, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

6. Claims 1-2 and 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over '146.

'146 teaches the limitations of:

Claim 1: A sub-atmospheric downstream pressure control apparatus (Fig. 4, abatement system #200, col. 8, line 26, part of the system of Fig. 1, including the throttle valve #82), characterized by: a first flow restricting element (FRE) (throttle valve #82, Fig. 1); a pressure control chamber (PCC) (#210, gas energized reactor) located in serial fluidic communication downstream from said first FRE; a gas source (one of the #235, col. 7, lines 37-40); and a flow controlling device (one of the control valve #240) in serial fluidic communication downstream from said gas source and upstream from said PCC.

Claim 5 (besides the limitations of claim 1 right above): A wafer processing apparatus comprising a process chamber (Fig. 1, #25), said apparatus characterized by: a process reactive gas supply line (line connects between #70 and nozzle #72) from a process gas source (#70, col. 3, lines 36-38) in serial fluidic communication upstream from said process chamber; an upstream flow control device (the valve as shown in Fig. 1, not labeled) located in serial fluidic communication upstream from said process chamber and downstream from said process gas source.

Claims 2 and 6: A sub-atmospheric downstream pressure control apparatus as in claim 1 (or 5) further characterized by: a reactive gas source (the second #235, col. 8, lines 12-13) connected in serial fluidic communication upstream from said PCC; and an abatement element (#226a-b, electrode) located within said PCC.

'146 does not teaches the limitation of claim 1:

A second FRE located in serial fluidic communication downstream from said PCC.

'146 further teaches a throttle valve at the inlet #211 to prevent backflow (col. 6, lines 35-38). At the time the invention was made, it would have been obvious to a person of ordinary of skill in the art to have added an additional throttle valve between the outlet (#212, Fig. 4) and pumps (#125) to further prevent backflow of effluent (#100). This additional throttle valve would have been a second FRE downstream from said PCC(#210).

Motivation would have been to further prevent backflow.

'146 discloses the claimed invention except for an additional throttle valve. It would have been an obvious matter of design choice to duplicate the throttle valve, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keath T. Chen whose telephone number is 571-270-1870. The examiner can normally be reached on M-F, 8:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on 571-272-1418. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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